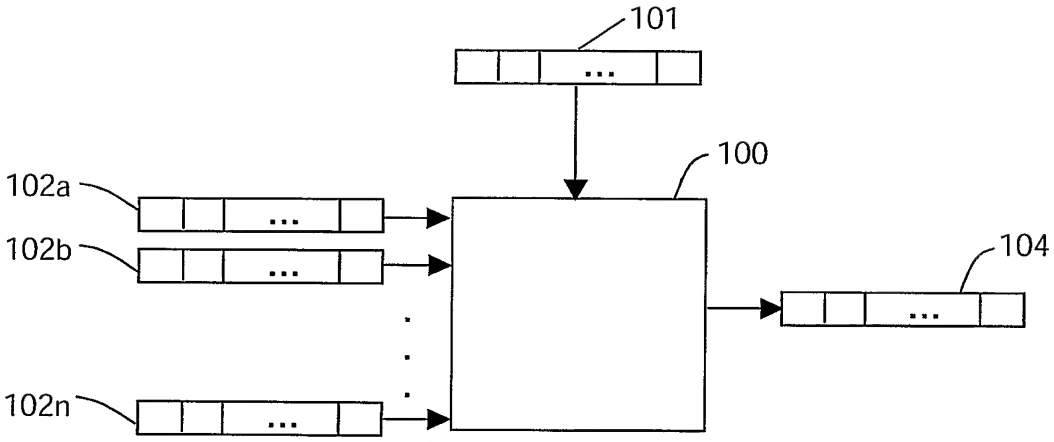

FIG.1

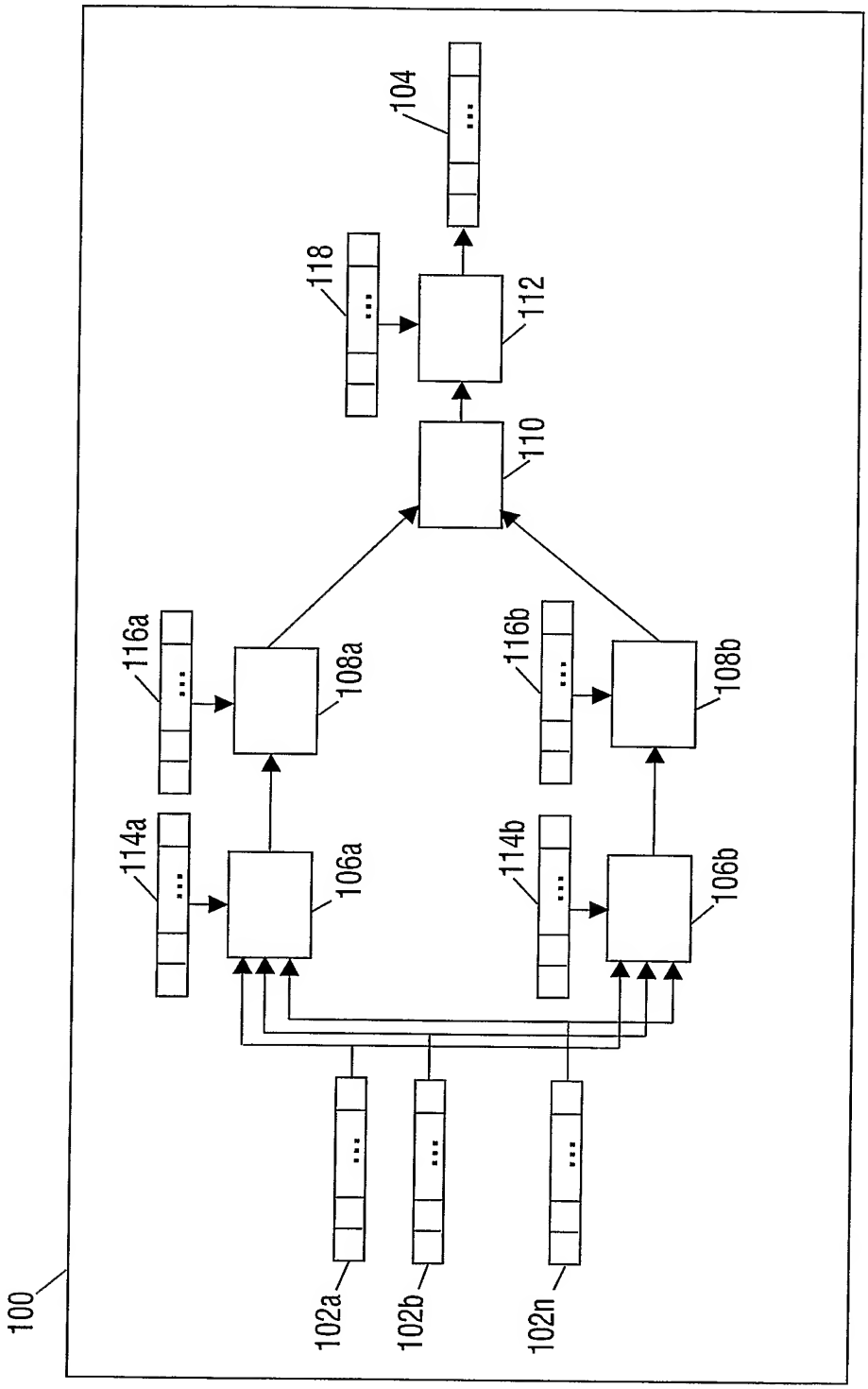
100
102a
102b
102n
104
106a
106b
108a
108b
110
112
114a
114b
116a
116b
118

FIG.2

For C_{long}

C_1: $(\forall i : 0 \le i < 16 : \; C_1(i) = LFSR_1(i) + LFSR_2(i))$

C_2: $(\forall i : 0 \le i < 16 : \; C_2(i) = SLFSR_1(i) + SLFSR_2(i))$

For S_{dl}, C_{pre}, $C_{e\text{-}acc}$ and $C_{e\text{-}ed}$

C_1: $(\forall i : 0 \le i < 16 : \; C_1(i) = LFSR_1(i) + LFSR_2(i) + H_1(i))$

C_2: $(\forall i : 0 \le i < 16 : \; C_2(i) = SLFSR_1(i) + SLFSR_2(i) + H_1(i))$

For C_{short}

C_1: $(\forall i : 0 \le i < 16 : \; C_1(i) = LFSR_1(i) + LFSR_2(i) + LUT_1(2i) + LUT_1(2i+1))$

C_2: $(\forall i : 0 \le i < 16 : \; C_2(i) = LFSR_1(i) + LFSR_2(i) + LUT_1(2i))$

For C/A (GPS)

C1: $(\forall i : 0 \le i < 16 : \; C1(i) = LFSR_1(i) + SLFSR_2(i))$

C2: $(\forall i : 0 \le i < 16 : \; C2(i) = LFSR_2(i) + SLFSR_1(i))$

C_{long} and C_{short}

OUT: $(\forall i : 0 \le i < 8 :$

$OUT(4i) = 0 + C_1(2i) + 0 * C_2(2i)$

$OUT(4i+1) = 0 + C_1(2i) + 1 * C_2(2i)$

$OUT(4i+2) = 0 + C_1(2i+1) + 0 * C_2(2i)$

$OUT(4i+3) = 1 + C_1(2i+1) + 1 * C_2(2i))$

C_{pre}, $C_{e\text{-}acc}$ and $C_{e\text{-}ed}$

OUT: $(\forall i : 0 \le i < 8 :$

$OUT(4i) = \alpha + C_1(2i)$

$OUT(4i+1) = \beta + C_1(2i)$

$OUT(4i+2) = \gamma + C_1(2i+1)$

$OUT(4i+3) = \delta + C_1(2i+1))$

$(\alpha,\beta,\gamma,\delta) \in \{(0,0,1,0),(1,1,0,1)\}^*$

S_{dl}

OUT: $(\forall i : 0 \le i < 8 :$

$OUT(4i) = 1 * C_1(2i) + 0 * C_2(2i)$

$OUT(4i+1) = 0 * C_1(2i) + 1 * C_2(2i)$

$OUT(4i+2) = 1 * C_1(2i+1) + 0 * C_2(2i+1)$

$OUT(4i+3) = 0 * C_1(2i+1) + 1 * C_2(2i+1))$

C/A (GPS)

OUT: $(\forall i : 0 \le i < 8 :$

$OUT(4i) = C_1(2i)$

$OUT(4i+1) = C_1(2i)$

$OUT(4i+2) = C_1(2i+1)$

$OUT(4i+3) = C_1(2i+1))$

FIG.3

f_s: $(\forall n : 0 \le n < 16 : o_n = (\sum m : 0 \le m < 7 : ks_m * i_m[n]))$

f_r: $(\forall n : 0 \le n < 8 \wedge (kr_0, kr_1) = (0, 0) : (o_{4n}, o_{4n+1}, o_{4n+2}, o_{4n+3}) = (i_{2n}, i_{2n}, i_{2n}, i_{2n}))$
$(\forall n : 0 \le n < 8 \wedge (kr_0, kr_1) = (0, 1) : (o_{4n}, o_{4n+1}, o_{4n+2}, o_{4n+3}) = (i_{2n}, i_{2n}, i_{2n+1}, i_{2n+1}))$
$(\forall n : 0 \le n < 8 \wedge (kr_0, kr_1) = (1, 0) : (o_{4n}, o_{4n+1}, o_{4n+2}, o_{4n+3}) = (i_{2n+1}, i_{2n+1}, i_{2n}, i_{2n}))$
$(\forall n : 0 \le n < 8 \wedge (kr_0, kr_1) = (1, 1) : (o_{4n}, o_{4n+1}, o_{4n+2}, o_{4n+3}) = (i_{2n+1}, i_{2n+1}, i_{2n+1}, i_{2n+1}))$

f_m: $(\forall n : 0 \le n < 32 : o_n = i_n * km_{(n \bmod 8)})$

f_a: $(\forall n : 0 \le n < 32 : o_n = i_n + j_n)$

f_{cn}: $(\forall n : 0 \le n < 32 : o_n = i_n + kcn_n)$

FIG.4